AP Statistics Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Ch. 7 Classwork Date: \_\_\_\_\_\_\_\_\_\_\_ Block: \_\_\_\_

1) After conducting a survey at a pet store to see what impact having a pet had on the condition of the yard, a news reporter stated “There appears to be a strong correlation between the owning a pet (Y or N) and the condition of the yard (rated on a scale of 1 – 10).” Comment on this observation.

2) On the axes below, sketch a scatterplot described:

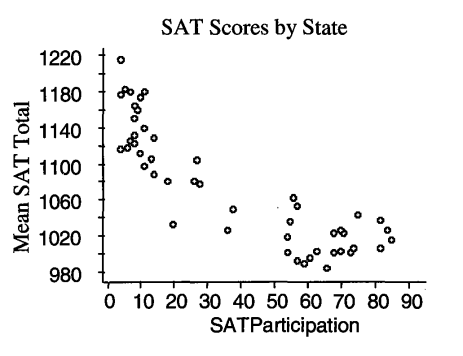
a. a **strong** positive association b. a **weak** negative association



3. A study by a prominent psychologist found a moderately strong positive association between the number of hours of sleep a person gets and the person’s ability to memorize information.

a. Explain **in the context of this problem** what “positive association” means.

b. Hoping to improve academic performance, the psychologist recommended the school board allow students to take a nap prior to any assessment. Discuss the psychologist’s recommendations.

4) A common objective for many school administrators is to increase the number of students taking SAT and ACT tests from their school. The data from each state from 2003 are reflected in the scatterplot at the right.

a. Describe the association.

b. Estimate the correlation. r = \_\_\_\_

c. If the point in the top left corner (4, 1215) were removed, would the correlation become stronger, weaker, or remain about the same? Explain briefly.

d. If the point in the very middle (38, 1049) were removed, would the correlation become stronger, weaker, or remain about the same? Explain briefly.

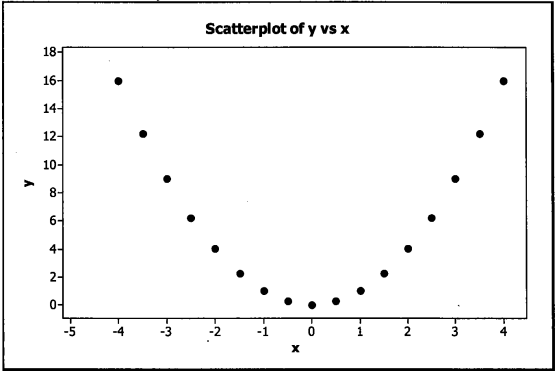
5) Identify what is wrong with each of the following statements:

a. The correlation between Olympic gold medal times for the 800m hurdles and year is —0.66 seconds per year.

b. The correlation between Olympic gold medal times for the 100m dash and year is -1.37.

c. Since the correlation between Olympic gold medal times for the 800m hurdles and 100m dash is -0. 41, the correlation between times for the 100m dash and the 800m hurdles is +0.41.

d. If we were to measure Olympic gold medal times for the 800m hurdles in minutes instead of seconds, the correlation would be —0.66/60 = —0.011.

6) The following scatterplot shows a relationship between x and y that results in a correlation coefficient of r =0. Explain why r = 0 in this situation even though there appears to be a strong relationship between the x and y variables.

7) In a scatterplot the correlation between *x* and *y* is *r* = 0.83. State the correlation for each of the following situations:

1. Each *x* value is multiplied by –3. *r* = \_\_\_\_
2. Each *y* value is increased by 8. *r* = \_\_\_\_
3. The *x* and *y* variables are switched. *r* = \_\_\_\_
4. Every *x* value is multiplied by 4 and subtracted by 8. Every *y* value is

multiplied by –0.5 and added to 12. *r* = \_\_\_\_